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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191				SORKIN, DAVID L
		ART UNIT		PAPER NUMBER
		1723		

DATE MAILED: 07/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/857,204	KELSO ET AL.
Examiner	Art Unit	
David L. Sorkin	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 19 April 2004.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-37 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-37 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

1. The finality of the office action mailed 15 August 2003 (paper No. 13) is withdrawn.
2. Prosecution is reopened.

Drawings

3. The proposed drawing changes filed on 04 June 2003 have been approved. Corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

Specification

4. In line 4 of the current version of the paragraph which original began on page 10, line 28, "ration" should read - - ratio - -.

Claim Objections

5. Applicant is advised that should claim 22 be found allowable, claim 23 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). Because claim 22 requires "said first fluid inlet is spaced toward said bluff body from said opposite end of the chamber" it is considered that dependent claim 23 is necessarily satisfied, if parent claim 22 is satisfied.

Claim Rejections - 35 USC §§ 101 and 112

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-32, 34, 35 and 37 are rejected under 35 U.S.C. 101 and 35

U.S.C. 112, second paragraph:

Independent claim 1 recites both a product, "a fluid mixing device", and method steps for using the device, "a fluid flow from said first fluid inlet and/or from said second fluid inlet establishing a recirculating vortex system within said chamber and resulting in a mixture of fluids from said first fluid inlet and said second fluid inlet(s) being directed through said mixed fluid outlet(s)". MPEP 2173.05(p)(II) indicates, based upon *Ex parte Lyell*, 17 USPQ2d 1548 (Bd. Pat. App. & Inter. 1900), that such claims should be rejected under section 112 second paragraph as ambiguous and under section 101 as nonstatutory because the invention must only be in a single statutory class (*Lyell* at 1551).

Analogously, independent claim 34 recites the method step(s) "a fluid flow from said first fluid inlet and said at least one second fluid inlet establishing a recirculating vortex system within said chamber and a mixture of fluids from said first fluid inlet and said at least one second fluid inlet being emitted through said mixed fluid outlet" in an otherwise apparatus claim.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1, 20-23 and 25-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Patterson et al. (US 384,068). Regarding claim 1, Patterson ('068) discloses a fluid mixing device including a chamber, a bluff body (H) defining one end of the chamber, a first fluid inlet (D) disposed toward an opposite end of the chamber from said bluff body and arranged to direct fluid toward said bluff body (see Fig. 1; for a version of Fig. 1 marked-up by the examiner, see the Response to Arguments section of paper No. 13), a region substantially surrounding said bluff body including a flow divider (G,C,C') defining at least one second fluid inlet (defined between G and A) and at least one mixed fluid outlet (between H and G). While claim 1 additionally includes some discussion of what the claimed device is intended to do to a fluid intended to be used in the device, specifically, "a fluid flow from said first fluid inlet and/or from said second fluid inlet establishing a recirculating vortex system within said chamber and resulting in a mixture of fluids from said first fluid inlet and said second fluid inlet(s) being directed through said mixed fluid outlet(s)", "apparatus claims cover what a device *is*, not what a device *does*" (emphasis in original) *Hewlett Packard Co. v. Bausch & Lomb Inc.* 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). Also,

"[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim" *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969). The basis for rejection is not that the reference discloses (explicitly, implicitly, or inherently) the method step(s) "a fluid flow from said first fluid inlet and/or from said second fluid inlet establishing a recirculating vortex system within said chamber and resulting in a mixture of fluids from said first fluid inlet and said second fluid inlet(s) being directed through said mixed fluid outlet(s)". However, to the extent that the claimed invention is a machine or product, and to the extent that applicant believes the recitation implies a functional limitation thereto (such as a capability to be used to carry out the step(s)), applicant is advised that (quoting MPEP 2112.01), "WHEN THE STRUCTURE RECITED IN THE REFERENCE IS SUBSTANTIALLY IDENTICAL TO THAT OF THE CLAIMS, CLAIMED PROPERTIES OR FUNCTIONS ARE PRESUMED INHERENT" (block capitalization in original). The first inlet, second inlet and outlet of the reference are configured and arranged in the same manner as those of the instant invention, with the first inlet at the bottom center, the second inlet at the top circumference, and the outlet inward with respect to the second inlet. The extreme structural homology creates a strong presumption of inherency of the capability to achieve the recited fluid flow pattern. Applicant is further advised that "the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristic of his claimed product" *In re Fitzgerald* 205 USPQ 594, 596 (CCPA 1980) and "where the Patent Office has

reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied upon" *In re Swinehart* 169 USPQ 226, 229. Regarding claim 20, the flow divider protrudes beyond said bluff body (see Fig. 1). Regarding claim 21, the flow divider extends into said chamber (see Fig. 1). Regarding claim 22, said first fluid inlet is spaced toward said bluff body from said opposite end of the chamber (see Fig. 1). Regarding claim 23, device of Patterson ('068) necessarily meets the limitation of claim 23 because the inlet is between the bluff body and the opposite end of the chamber. Regarding claim 25, said chamber is formed by a generally cup-shaped body with said bluff body disposed at or adjacent an open end (see Fig. 1). Regarding claim 26, said first fluid inlet is centrally disposed in the base of said cup (see Fig. 1). Regarding claim 27, said flow divider extends between the wall of said cup adjacent the open end and said bluff body (see Fig. 1). Regarding claim 28, the flow divider is fixed to the wall of said cup (see Fig. 1). Regarding claim 29, the mixing device is a burner (see title). Regarding claims 30-32, while, "[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim" *Ex parte Thibault*, supra., the reference discusses the first inlet supplying combustible, hydrocarbon fuel (see page 1, lines 15-20) and the second inlets supplying air (see page 1 lines 58-61; Fig. 1). Regarding claim 33, Patterson ('068) discloses a fluid mixing device including a

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chamber, a bluff body (H) defining one end of the chamber, a first fluid inlet (D) disposed toward an opposite end of the chamber from said bluff body and arranged to direct a first fluid toward said bluff body (see Fig. 1; for a version of Fig. 1 marked-up by the examiner, see the Response to Arguments section of paper No. 13), a region substantially surrounding said bluff body including a flow divider (G,C,C') defining at least one second fluid inlet (defined between G and A) configured to provide a second fluid to said chamber and at least one mixed fluid outlet (between H and G) configured to emit a mixture of said first fluid and said second fluid from said chamber while at least one second fluid inlet provides a second fluid to said chamber. Claim 33 additionally recites "said first and second inlets and said mixed fluid outlet being configured and positioned so that a fluid flow from said first fluid inlet and said at least one second fluid inlet establishes a recirculating vortex system within said chamber that mixes said first fluid and said second fluid". It is considered that this recitation does not require that act "a fluid flow from said first fluid inlet and said at least one second fluid inlet establishes a recirculating vortex system within said chamber that mixes said first fluid and said second fluid" to be perform", but that the device being capable of being used to perform such an act. "[A]pparatus claims cover what a device *is*, not what a device *does*" (emphasis in original) *Hewlett Packard Co. v. Bausch & Lomb Inc.* supra. Also, "[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim" *Ex parte Thibault*, supra. Regarding the capability to be used to perform the act, applicant is advised that

(quoting MPEP 2112.01), "WHEN THE STRUCTURE RECITED IN THE REFERENCE IS SUBSTANTIALLY IDENTICAL TO THAT OF THE CLAIMS, CLAIMED PROPERTIES OR FUNCTIONS ARE PRESUMED INHERENT"

(block capitalization in original). The first inlet, second inlet and outlet of the reference are configured and arranged in the same manner as those of the instant invention, with the first inlet at the bottom center, the second inlet at the top circumference, and the outlet inward with respect to the second inlet. The extreme structural homology creates a strong presumption of inherency of the capability to achieve the recited fluid flow pattern. Applicant is further advised that "the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristic of his claimed product" *In re Fitzgerald* 205 USPQ 594, 596 (CCPA 1980) and "where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied upon" *In re Swinehart* 169 USPQ 226, 229. Regarding claim 34, Patterson ('068) discloses a fluid mixing device including a chamber, a bluff body (H) defining one end of the chamber, a first fluid inlet (D) disposed toward an opposite end of the chamber from said bluff body that directs a first fluid toward said bluff body (see Fig. 1; for a version of Fig. 1 marked-up by the examiner, see the Response to Arguments section of paper No. 13), a region substantially surrounding said bluff body including a flow divider (G,C,C') defining at least one

second fluid inlet (defined between G and A) that provides a second fluid to said chamber and at least one mixed fluid outlet (between H and G) that emits a mixed fluid. While claim 34 includes some additional discussion of what the claimed device is intended to do to a fluid intended to be used in the device, specifically, "a fluid flow from said first fluid inlet and said at least one second fluid inlet establishing a recirculating vortex system within said chamber and a mixture of fluids from said first fluid inlet and said at least one second fluid inlet being emitted through said mixed fluid outlet", "apparatus claims cover what a device *is*, not what a device *does*" (emphasis in original) *Hewlett Packard Co. v. Bausch & Lomb Inc.* 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). Also, "[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim" *Ex parte Thilbault*, 164 USPQ 666, 667 (Bd. App. 1969). The basis for rejection is not that the reference discloses (explicitly, implicitly, or inherently) the method step(s) "a fluid flow from said first fluid inlet and said at least one second fluid inlet establishing a recirculating vortex system within said chamber and a mixture of fluids from said first fluid inlet and said at least one second fluid inlet being emitted through said mixed fluid outlet". However, to the extent that the claimed invention is a machine or product, and to the extent that applicant believes the recitation implies a functional limitation thereto (such as a capability to be used to carry out the step(s)), applicant is advised that (quoting MPEP 2112.01), "WHEN THE STRUCTURE RECITED IN THE REFERENCE IS SUBSTANTIALLY IDENTICAL TO THAT OF THE CLAIMS, CLAIMED

PROPERTIES OR FUNCTIONS ARE PRESUMED INHERENT" (block capitalization in original). The first inlet, second inlet and outlet of the reference are configured and arranged in the same manner as those of the instant invention, with the first inlet at the bottom center, the second inlet at the top circumference, and the outlet inward with respect to the second inlet. The extreme structural homology creates a strong presumption of inherency of the capability to achieve the recited fluid flow pattern. Applicant is further advised that "the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristic of his claimed product" *In re Fitzgerald* 205 USPQ 594, 596 (CCPA 1980) and "where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied upon" *In re Swinehart* 169 USPQ 226, 229. Regarding claim 35-37, while "the manner or method in which such machine is to be utilized is not germane to the issue of patentability of the machine itself" *In re Casey* 152 USPQ 235 (CCPA 1967), the reference uses arrows in Fig. 1 to depict that a direction of fluid entry to said chamber from said first fluid inlet is substantially opposite a direction of fluid entry to said chamber from said at least one second fluid inlet.

11. Claims 1-9 and 20-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Ryschkewitsch (US 2,044,511). Regarding claim 1, Ryschkewitsch ('511) discloses a fluid mixing device (see especially the

embodiment of Figs. 3 and 4, but also that of Figs. 1 and 2) including a chamber, a bluff body (including a center annulus, 17 in Fig. 3; 8' and/or 8 in Fig. 1) defining one end of the chamber, a first fluid inlet (2) disposed toward an opposite end of the chamber from said bluff body and arranged to direct fluid toward said bluff body, a region substantially surrounding said bluff body including a flow divider (including another, more radially outward annulus 17 and radial ribs 18 in Figs. 3 and 4; 7 in Fig. 1) defining at least one second fluid inlet and at least one mixed fluid outlet (see Figs.). While claim 1 additionally includes some discussion of what the claimed device is intended to do to a fluid intended to be used in the device, specifically, "a fluid flow from said first fluid inlet and/or from said second fluid inlet establishing a recirculating vortex system within said chamber and resulting in a mixture of fluids from said first fluid inlet and said second fluid inlet(s) being directed through said mixed fluid outlet(s)", "apparatus claims cover what a device *is*, not what a device *does*" (emphasis in original)

Hewlett Packard Co. v. Bausch & Lomb Inc. 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). Also, "[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim" *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969). The basis for rejection is not that the reference discloses (explicitly, implicitly, or inherently) the method step(s) "a fluid flow from said first fluid inlet and/or from said second fluid inlet establishing a recirculating vortex system within said chamber and resulting in a mixture of fluids from said first fluid inlet and said second fluid inlet(s) being directed through said mixed fluid outlet(s)". However,

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to the extent that the claimed invention is a machine or product, and to the extent that applicant believes the recitation implies a functional limitation thereto (such as a capability to be used to carry out the step(s)), applicant is advised that (quoting MPEP 2112.01), "WHEN THE STRUCTURE RECITED IN THE REFERENCE IS SUBSTANTIALLY IDENTICAL TO THAT OF THE CLAIMS, CLAIMED PROPERTIES OR FUNCTIONS ARE PRESUMED INHERENT" (block capitalization in original). The first inlet, second inlet and outlet of the reference are configured and arranged in the same manner as those of the instant invention, with the first inlet at the bottom center, the second inlet at the top circumference, and the outlet inward with respect to the second inlet. The extreme structural homology creates a strong presumption of inherency of the capability to achieve the recited fluid flow pattern. Applicant is further advised that "the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristic of his claimed product" *In re Fitzgerald* 205 USPQ 594, 596 (CCPA 1980) and "where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied upon" *In re Swinehart* 169 USPQ 226, 229. Regarding claims 2-7, the bluff body had egress means including a central, circular aperture (see Figs. 3 and 4) and is therefore porous to fluid. Regarding claim 6, the first fluid inlet is directed substantially toward the central aperture (see Fig. 3). Regarding claim 8, said

flow divider defines a series of flow channels which form said second fluid inlets and said mixed fluid outlets (see Figs. 3 and 4). Regarding claim 9, alternate ones of said flow channels spaced around said bluff body respectively form said second fluid inlets and said mixed fluid outlets (see Figs. 3 and 4). Regarding claim 20, the flow divider protrudes beyond said bluff body (see Figs. 3 and 4). Regarding claim 21, the flow divider extends into said chamber (see Fig. 3). Regarding claim 22, said first fluid inlet is spaced toward said bluff body from said opposite end of the chamber (see Fig. 3). Regarding claim 23, device of Ryschkewitsch ('511) necessarily meets the limitation of claim 23 because the inlet is between the bluff body and the opposite end of the chamber. Regarding claim 24, h/L is about 0.4 (see Fig. 3). Regarding claim 25, said chamber is formed by a generally cup-shaped body with said bluff body disposed at or adjacent an open end (see Fig. 3). Regarding claim 26, said first fluid inlet is centrally disposed in the base of said cup (see Fig. 3). Regarding claim 27, said flow divider extends between the wall of said cup adjacent the open end and said bluff body (see Figs. 3 and 4). Regarding claim 28, the flow divider is fixed to the wall of said cup (see Figs. 3 and 4). Regarding claim 29, the mixing device is a burner (see title). Regarding claims 30-32, "[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim" *Ex parte Thibault*, supra. Regarding claim 33, Ryschkewitsch ('511) discloses a fluid mixing device (see especially the embodiment of Figs. 3 and 4, but also that of Figs. 1 and 2) including a chamber, a bluff body (including a center annulus, 17 in Fig. 3; 8'

and/or 8 in Fig. 1) defining one end of the chamber, a first fluid inlet (2) disposed toward an opposite end of the chamber from said bluff body and arranged to direct a first fluid toward said bluff body, a region substantially surrounding said bluff body including a flow divider (including another, more radially outward annulus 17 and radial ribs 18 in Figs. 3 and 4; 7 in Fig. 1) defining at least one second fluid inlet configured to provide a second fluid to said chamber and at least one mixed fluid outlet (see Figs.) configured to emit a mixture of said first fluid and said second fluid from said chamber while said at least one second fluid inlet provides a second fluid to said chamber. Claim 33 additionally recites "said first and second inlets and said mixed fluid outlet being configured and positioned so that a fluid flow from said first fluid inlet and said at least one second fluid inlet establishes a recirculating vortex system within said chamber that mixes said first fluid and said second fluid". It is considered that this recitation does not require that act "a fluid flow from said first fluid inlet and said at least one second fluid inlet establishes a recirculating vortex system within said chamber that mixes said first fluid and said second fluid" to be perform", but that the device being capable of being used to perform such an act. "[A]pparatus claims cover what a device *is*, not what a device *does*" (emphasis in original) *Hewlett Packard Co. v. Bausch & Lomb Inc.* supra. Also, "[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim" *Ex parte Thilbault*, supra. Regarding the capability to be used to perform the act, applicant is advised that (quoting MPEP 2112.01), "WHEN THE STRUCTURE RECITED IN THE

REFERENCE IS SUBSTANTIALLY IDENTICAL TO THAT OF THE CLAIMS,
CLAIMED PROPERTIES OR FUNCTIONS ARE PRESUMED INHERENT”
(block capitalization in original). The first inlet, second inlet and outlet of the
reference are configured and arranged in the same manner as those of the
instant invention, with the first inlet at the bottom center, the second inlet at the
top circumference, and the outlet inward with respect to the second inlet. The
extreme structural homology creates a strong presumption of inherency of the
capability to achieve the recited fluid flow pattern. Applicant is further advised
that “the PTO can require an applicant to prove that the prior art products do not
necessarily or inherently possess the characteristic of his claimed product” *In re*
Fitzgerald 205 USPQ 594, 596 (CCPA 1980) and “where the Patent Office has
reason to believe that a functional limitation asserted to be critical for establishing
novelty in the claimed subject matter may, in fact, be an inherent characteristic of
the prior art, it possesses the authority to require applicant to prove that the
subject matter shown to be in the prior art does not possess the characteristic
relied upon” *In re Swinehart* 169 USPQ 226, 229. Regarding claim 34,
Ryschkewitsch ('511) discloses a fluid mixing device (see especially the
embodiment of Figs. 3 and 4, but also that of Figs. 1 and 2) including a chamber,
a bluff body (including a center annulus, 17 in Fig. 3; 8' and/or 8 in Fig. 1)
defining one end of the chamber, a first fluid inlet (2) disposed toward an
opposite end of the chamber from said bluff body that directs a first fluid toward
said bluff body, a region substantially surrounding said bluff body including a flow
divider (including another, more radially outward annulus 17 and radial ribs 18 in

Figs. 3 and 4; 7 in Fig. 1) defining at least one second fluid inlet to said chamber that provides a second fluid and at least one mixed fluid outlet (see Figs.) from said chamber that emits a mixed fluid. While claim 34 includes some additional discussion of what the claimed device is intended to do to a fluid intended to be used in the device, specifically, "a fluid flow from said first fluid inlet and said at least one second fluid inlet establishing a recirculating vortex system within said chamber and a mixture of fluids from said first fluid inlet and said at least one second fluid inlet being emitted through said mixed fluid outlet", "apparatus claims cover what a device *is*, not what a device *does*" (emphasis in original)

Hewlett Packard Co. v. Bausch & Lomb Inc. 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). Also, "[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim" *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) The basis for rejection is not that the reference discloses (explicitly, implicitly, or inherently) the method step(s) "a fluid flow from said first fluid inlet and said at least one second fluid inlet establishing a recirculating vortex system within said chamber and a mixture of fluids from said first fluid inlet and said at least one second fluid inlet being emitted through said mixed fluid outlet". However, to the extent that the claimed invention is a machine or product, and to the extent that applicant believes the recitation implies a functional limitation thereto (such as a capability to be used to carry out the step(s)), applicant is advised that (quoting MPEP 2112.01), "WHEN THE STRUCTURE RECITED IN THE REFERENCE IS SUBSTANTIALLY IDENTICAL TO THAT OF THE CLAIMS, CLAIMED

PROPERTIES OR FUNCTIONS ARE PRESUMED INHERENT" (block capitalization in original). The first inlet, second inlet and outlet of the reference are configured and arranged in the same manner as those of the instant invention, with the first inlet at the bottom center, the second inlet at the top circumference, and the outlet inward with respect to the second inlet. The extreme structural homology creates a strong presumption of inherency of the capability to achieve the recited fluid flow pattern. Applicant is further advised that "the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristic of his claimed product" *In re Fitzgerald* 205 USPQ 594, 596 (CCPA 1980) and "where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied upon" *In re Swinehart* 169 USPQ 226, 229. Regarding claims 35-37, the apparatus of Ryschkewitsch ('511) is capable of being used in the manner discussed in claim 35, for example with fuel gas entering the first inlet (2) and air entering in an opposite direction from said at least one second fluid inlet (for example an orifice defined between the outermost ring 17 and the side wall of the chamber).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patterson et al. (US 384,068). Though numerical values are not discussed by the reference, as depicted in Fig. 1, the h/L ratio is approximately 0.6. It is considered that it would have been obvious to one of ordinary skill in the art to have optimized the spacing of the inlet and/or bluff body, to create a particular air flow. See page 1, lines 65-90 for a discussion of spacings and air flow.

Response to Arguments

14. Applicant's argues in the brief that (page 9), providing the elements of claim 1 "without regard to their arrangement and configuration, does not necessarily result in 'a fluid flow...'" (emphasis by applicant). However, even if the elements are arranged according to an embodiment of the invention, 'a fluid flow...' does not necessarily result. The device could just be sitting is a box being shipped and have no fluid flow at all. Only when the device is attached to a fluid source, such as a pressurized fluid line, would the device involve "a fluid flow" at all. The velocity and composition of such fluid would influence the nature of any flow pattern that forms. One should not imagine that applicant has disclosed a device with no moving parts that magically results in a specific flow and vortex pattern in all circumstances.

15. As explained in *In re Schreiber* 44 USPQ2d 1429 (CA FC 1997): "A patent applicant is free to recite features of an apparatus structurally or functionally. []

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Yet, choosing to define an element functionally, *i.e.*, by what it does, carries with it a risk. As our predecessor court stated in *Swinehart*, 439 F.2d at 213, 169 USPQ at 228: where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied upon".

16. Two references previously provided to applicant are now listed on a Notice of References Cited. In the NASA glossary, the entry for "vortex" makes clear that a "vortex" is necessarily recirculating. The phrase "recirculating vortex" is redundant. Under the entry for "vortex" is stated that "Turbulent flow is made up of many little vortices". The reference "Physics for Scientists and Engineers", page 504, explains that for any fluid situation, sufficient fluid velocity creates turbulent flow, (and therefore vortices or, redundantly, recirculating vortices). Therefor, one need only supply fluid to the prior art devices at sufficient velocity to necessitate the presence of vortices. Fishbane also explains that this threshold velocity is relative low is a typical circumstance (for example 0.3 m/s). While the relied upon prior art references may not explicitly, inherently, or intrinsically disclose the act of establishing a vortex, there is overwhelming reason to believe that it is capable of being used to achieve the acts applicants have included in the claims, including establishing a vortex.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Sorkin whose telephone

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number is 571-272-1148. The examiner can normally be reached on 9:00 -5:30

Mon.-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David Sorkin

David L. Sorkin
Examiner
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